Development assistance for health: should policy-makers worry about its macroeconomic impact?

Eleonora Cavagnero, Christopher Lane, David B Evans & Guy Carrin

Abstract Many low-income countries need to substantially increase expenditure to meet universal coverage goals for essential health services but, because they have very low-incomes, most will be unable to raise adequate funds exclusively from domestic sources in the short to medium term. Increased aid for health will be required. However, there has long been a concern that the rapid arrival of large amounts of foreign exchange in a country could lead to an increase in inflation and loss of international competitiveness, with an adverse impact on exports and economic growth, an economic phenomenon termed ‘Dutch disease’. We review cross-country and country-level empirical studies and propose a simple framework to gauge the extent of macroeconomic risks. Of the 15 low-income countries that are increasing aid-financed health spending, 7 have high macroeconomic risks that may constrain the sustained expansion of spending. These conditions also apply in one-quarter of the 42 countries not presently increasing spending. Health authorities should be aware of the multiple risk factors at play, including factors that are health-sector specific and others that generally are not. They should also realize that there are effective means for mitigating the risk of Dutch disease associated with increasing development assistance for health. International partners also have an important role to play since more sustainable and predictable flows of donor funding will allow more productivity enhancing investment in physical and human capital, which will also contribute to ensuring there are few harmful macroeconomic effects of increases in aid.

Introduction

Low-income developing countries need to substantially increase expenditure to meet universal coverage goals for essential health services and to achieve significant improvements in population health, such as those targeted by the Millennium Development Goals. Almost all the countries with the most pressing health needs have very low incomes and are unlikely to be able to raise adequate funds exclusively from domestic sources in the near future. Increased development assistance will be required to supplement any increase in domestic funds. The international community has responded by substantially increasing commitments to development assistance for health in selected low-income countries (Fig. 1).

However, there has long been concern that the rapid arrival of large amounts of foreign exchange in a country could lead to an increase in inflation and loss of international competitiveness, with an adverse impact on exports and economic growth. This paper examines the risks that aid flows for health pose for key macroeconomic variables, reviews the recent cross-country and country-level empirical studies and suggests how adverse effects could be minimized. It also illustrates how concerns with macroeconomic consequences of aid flows are linked to the question of fiscal space and budget ceilings in the public sector.

Effects of increased aid

Macroeconomists argue that spending large windfalls of foreign exchange may make countries less competitive, either by raising inflation or by appreciating the exchange rate. As a result, exports, productivity and growth may fall or slow. This so-called ‘Dutch disease’ is named after the macroeconomic impact of natural gas discoveries in the Netherlands in the 1960s, which caused appreciation of the exchange-rate and shrinkage of the manufacturing sector. Dutch disease has since been linked to other types of foreign exchange inflows, particularly commodity booms and rapid increases in external assistance.

Foreign-exchange windfalls may result in domestic inflation and/or exchange-rate appreciation. In both cases, the tradable sector (firms that export goods or that compete against imported goods) becomes less competitive and less profitable. Attention is most commonly focused on inflation in goods and services, international competitiveness and the economic growth rate.

Domestic demand and prices

If inflows of aid received as foreign exchange are saved by the government there will be no direct macroeconomic impact, but this is not the purpose of aid. If it is used to purchase goods and services, a share will normally be used to purchase imports, such as drugs. The remainder would be spent on domestically produced goods and services – some that are internationally traded (e.g. bandages or cotton) and some that are not (e.g. many medical and transport services), which are known as non-traded goods.

If aid inflows are spent almost entirely on imports or goods that are typically ex-

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ported, there will be little effect on prices unless the country is very large; most are too small to influence the international price. However, additional spending on non-traded goods and services is likely to lead to price increases (inflation) and have follow-on macroeconomic problems. Therefore the extent to which aid poses a macroeconomic risk depends first on whether it is saved or spent. If aid is spent, the impact depends on whether it is spent on goods and services that are traded or non-traded.

International competitiveness
An increase in domestic prices (or wages) relative to foreign prices is called a rise (appreciation) in the real exchange rate (RER). The RER differs from the nominal exchange rate, being simply a measure of trade competitiveness that compares the price of a basket of domestic goods with the price of a basket of foreign goods.\textsuperscript{11} With an appreciation of the RER, domestic consumers will shift some of their consumption from the higher priced, domestically produced goods to foreign goods. The higher price of local inputs used to produce export goods reduces their profitability, the extent of investment in them, and the quantity of exports. Whether this is a problem depends partly on whether international competitiveness is already an issue, exemplified by a declining export market share and/or low levels of foreign-exchange reserves.

Impact on growth
In the example above, increased inflows of foreign exchange may boost demand for non-tradable goods, raise domestic prices and lower the profitability of producing exports. However, the subsequent effect on economic growth is ambiguous: the boost of demand and output for non-tradable goods may be offset by lower output of less-profitable exports. It is generally found that the tradable sector is associated with more rapid increases in productivity-enhancing skills and technology transfer than the non-tradable sector, so decline in the traded sector can impact long-term growth, even if it does not do so in the shorter run.\textsuperscript{12,13}

Several factors might mitigate the growth impact. First, in countries where there is high unemployment or underemployment, and where other types of excess production capacity exist, foreign-exchange inflows would create additional employment and stimulate production, rather than result in price increases and RER appreciation.\textsuperscript{14} Second, if foreign-exchange windfalls lead to investments that increase productivity in the non-traded sector, this could eliminate or reverse the short-term Dutch disease effects.\textsuperscript{15}

Investments in infrastructure or capital are more likely to increase productivity than recurrent spending.\textsuperscript{16,17} Although the evidence is not conclusive, expenditure on health and education may also improve productivity sufficiently to offset the negative macroeconomic effects described above. Certainly, health spending improves health status and the ability to work in low-income countries, while better health and education explain an important part of the difference in growth rates across countries.\textsuperscript{18–20} Thus aid inflows that are spent in ways that improve health status could improve productivity and stimulate economic growth. They could also, through their impact on mortality and morbidity, increase welfare well beyond the impact on gross domestic product (GDP) per capita.\textsuperscript{21}

Fiscal space
In most countries, limits are set on the level of total government expenditure each year, usually with considerable input from the ministry of finance and sometimes also with input from the international financial institutions. Fiscal space exists when there is budgetary room that allows a government to provide resources for a desired purpose without any prejudice to the sustainability of a government’s fiscal position.\textsuperscript{22}

There is considerable debate about whether ministries of finance, central banks and the international financial institutions impose macroeconomic targets (e.g. inflation targets) that are too restrictive.\textsuperscript{23,24} The purpose of this paper is not to debate these issues, but to indicate that overall government expenditure ceilings are inextricably linked to overall macroeconomic policies being pursued by governments, and that fears of Dutch disease are part of the process of setting ceilings. That being said, ceilings for individual government departments, rather than for the government as a whole, are more a function of internal political processes than the exigencies of overall macroeconomic policy.

Ceilings are more likely to be increased if the new external funds are believed to be long-term and predictable. If not, ceilings might be lifted only partially or not at all. For example, ceilings can sometimes be applied rigidly to activities that require long-term, recurrent expenditures (e.g. hiring staff) but less rigidly to one-off expenditures, such as the purchase of computers. External assistance has often been unpredictable and volatile, especially for the poorest countries that are most dependent on aid.\textsuperscript{25,26} This unpredictability has meant that ministries of finance have been reluctant to allow ministries of health to make long-term spending commitments immediately new aid flows are received. External partners can contribute substantially to a more rapid use of foreign assistance by providing longer term, more predictable assistance.\textsuperscript{27}
Country experiences

Cross-country studies show some evidence of aid-induced Dutch disease symptoms in general, though not specifically related to health spending. Some studies find that aid undermines the competitiveness of labour-intensive or exporting sectors, or that it depresses exports.28–29 A review of six cross-sectional studies finds a positive association between aid and the RER in four, and mixed results in the others.30–35

The sizeable literature reporting country case studies reaches less clear-cut conclusions on the prevalence of Dutch disease subsequent to increasing aid.7,34 In Malawi, Pakistan and Sri Lanka, aid surges were associated with RER appreciation and weak performance of the manufacturing sector, symptoms of Dutch disease.36–38 However, case studies of aid surges in Ethiopia, Mauritania, Mozambique, Nigeria and Sierra Leone show no evidence of RER appreciation or inflation.8,39–41 In these cases, aid may have been used productively or the aid surge may simply not be sufficiently long or large enough to have major macroeconomic effects. In fact, aid to Africa has often been associated with depreciation of the RER, rather than appreciation.42–45

A few countries, such as Ghana, Uganda and the United Republic of Tanzania, have initially shown signs of the Dutch disease phenomenon but were able to reverse the situation by following sound fiscal and monetary policies.43–49 Table 1 summarizes these countries’ experiences.

These studies reveal some common macroeconomic consequences of aid surges.7,46–49 As observed in Mozambique, Uganda and the United Republic of Tanzania, aid proceeds were spent but the central bank saved much of the foreign exchange to replenish reserves. As a result, domestic inflation accelerated from the aid-induced expansion of the money supply. Where the finance ministry supports spending aid flows but the central bank saves the foreign-exchange inflows, the risks of Dutch disease are higher. However, where central banks fear inflation, as in the United Republic of Tanzania, they typically slow credit growth or absorb cash through sales of securities (i.e., sterilization). This can cause increases in interest rates and can crowd out the private sector from credit, particularly if financial and capital markets are weak. Thus, the capacity to react to Dutch disease symptoms is influenced strongly by the depth of financial markets, inflation, the level of reserves and the volatility of aid inflows, as we discuss further in the next section.

Risk factors for health aid surges

In view of the above discussion, it is clear that being at risk of Dutch disease will depend on net transfers to the health

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**Table 1. Macroeconomic effects of receiving large amounts of aid, 11 countries**

<table>
<thead>
<tr>
<th>Occurrence of Dutch disease</th>
<th>Country</th>
<th>Period</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Ethiopia</td>
<td>2001–2003</td>
<td>Although aid was used to build reserves and reduce government debt, the central bank kept a tight curb on inflation. Dutch disease was controlled.</td>
</tr>
<tr>
<td></td>
<td>Mauritania</td>
<td>1999–2002</td>
<td>Significant share of aid inflows financed the growth on net imports. Inflation was controlled.</td>
</tr>
<tr>
<td></td>
<td>Mozambique</td>
<td>2000–2002</td>
<td>Domestic counterpart of aid was all spent and most of the foreign exchange financed an increase in net imports. RER depreciated.</td>
</tr>
<tr>
<td></td>
<td>Nigeria</td>
<td>1960–1990</td>
<td>Inflation remains stable and aid inflows were related to RER depreciation and growth of non-oil exports.</td>
</tr>
<tr>
<td></td>
<td>Sierra Leone</td>
<td>2002–2003</td>
<td>Some aid was used to rebuild reserves and reduce deficit. However, aid was mainly used to finance post-war reconstruction. Net imports increased and inflation decreased.</td>
</tr>
<tr>
<td>Some periods</td>
<td>Uganda</td>
<td>1970–1996, 1991–2001, 2000–2003</td>
<td>A small appreciation was found. However, between 1991 and 2003 monetary and exchange rate management encouraged private-sector development in an environment of large overseas development assistance. Inflation has been low and together with the RER has been on a broadly stable path.</td>
</tr>
<tr>
<td>Yes</td>
<td>Malawi</td>
<td>1990–1998, 1970–1990</td>
<td>Inflation was high. Aid flows were spent but central bank saved the foreign exchange and did not intervene in the foreign exchange or monetary market. RER appreciated. Aid inflows generated inflation and did not increase net imports, causing a fairly strong Dutch disease. Exports decreased.</td>
</tr>
<tr>
<td></td>
<td>Sri Lanka</td>
<td>1974–1988</td>
<td>Inflows of external funds were associated with inflation and Dutch disease phenomenon.</td>
</tr>
</tbody>
</table>

RER, real exchange rate.

* Dutch disease is an economic phenomenon that can occur when the inflow of large amounts of foreign exchange leads to an increase in inflation and loss of international competitiveness, with an adverse impact on exports and economic growth.
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sector (i.e. health grants plus loans, minus repayments of loan principal and interest); the overall net aid (i.e. net overseas development assistance); and on all sources of foreign exchange (e.g. net foreign direct investment or remittances). That being said, our focus in this paper is to understand how we may assess whether aid for health poses or reinforces a risk of Dutch disease.

We confine our risk analysis to 63 low-income countries where development assistance to health (DAH), which includes loans and grants, comprises at least 10% of government spending on health. For DAH to pose a potential macroeconomic risk, both DAH and overall health spending need to be rising significantly. Also, overseas development assistance and other sources of foreign exchange need to remain constant or increase. We define an increase in health spending where DAH increased by more than 25% in constant price US$ terms over the previous 4 years (2-year averages reduce the effect of random fluctuations) and where overall health spending as a share of the GDP increased. This occurred in 15 countries.

We then considered four factors that may pose macroeconomic risks after the increase in spending: (i) current macroeconomic instability (the level of inflation); (ii) the historical extent of DAH volatility; (iii) the level of foreign exchange reserves; and (iv) the depth of financial markets. For the descriptive statistics of these variables see Table 2.

First, the rate of inflation is used as an indicator of macroeconomic instability and excess demand. High inflation may limit the expansion of public spending, even if additional resources are available. To define a threshold for high inflation, we use evidence from the International Monetary Fund that the proportion of additional aid that ministries of finance allow to be spent is low when inflation is above 5% in sub-Saharan Africa. We identify countries with 12-month consumer price inflation above 5% at the end of 2006 as possessing this risk factor for Dutch disease, without taking a view on whether this is a reasonable threshold. Of the 15 countries experiencing a scale-up of aid and overall health spending, 11 had inflation rates above 5%, the four exceptions being members of the West African Economic and Monetary Union.

Second, volatile, short-term aid inflows are recognized as more of a problem for macroeconomic management than long-term increases, both because volatile aid means that it might prove difficult to fund some activities in the future and because temporary changes in relative prices may have long-term effects, e.g. by forcing firms out of business. A history of volatile aid flows increases the macroeconomic risks. We measure aid volatility as the deviation of annual aid from its long-term trend using the Hodrick–Prescott filter to divide the sample into equal-sized high- and low-aid volatility groups.

Third, if reserve levels are low, the monetary authorities are more likely to accumulate aid inflows to increase foreign-exchange levels. Any aid that is spent domestically by the government has to be financed by increasing the money supply, thereby raising inflationary pressures because the counterpart foreign exchange is not released into the market. The International Monetary Fund finds that countries with low levels of foreign reserves (defined as below 2.5 months of import coverage) tend to save aid-sourced foreign exchange rather than sell it to finance extra imports. Countries with end-2006 levels of foreign-exchange reserves that amount to less than this cut-off point are, therefore, assessed to have higher inflationary risks from a scale-up of aid than those with higher reserves.

Finally, if a country has substantial financial depth, i.e. has a high level of monetization which is usually defined by the ratio of broad money to GDP, monetary authorities can more easily avert inflationary pressures through open-market operations such as selling treasury or central bank bills to absorb liquidity. In countries with shallow financial markets, these operations are limited. Following a broadly accepted threshold, we define countries with shallow financial markets as those with a ratio of broad money to GDP in 2005 that is less than 30% and view them as at higher risk of aid-induced Dutch disease.

Countries are classified as having high macroeconomic risks if inflation plus at least two of the three other risk factors described above are present, and overseas development assistance did not fall. Medium risk exists with inflation and one or no other risk factor, and low risk if there is no inflation (but up to two other risk factors might be present). This exercise is indicative – different thresholds or indicators could be chosen. We have selected those usually related to Dutch disease and given an idea of critical values.

Seven of the 15 countries have high macroeconomic risks (Table 3). The remaining 8 are defined as having medium or low risks. We also identify a

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Increase in DAH 2004–2005 /2002–2003 in %</th>
<th>Aid volatilitya</th>
<th>Ratio of foreign-exchange reserves to imports</th>
<th>Consumer price inflation in %</th>
<th>Financial depth: ratio of broad money to GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>63.3</td>
<td>0.197</td>
<td>6.0</td>
<td>29.0</td>
<td>0.344</td>
</tr>
<tr>
<td>Median</td>
<td>23.9</td>
<td>0.175</td>
<td>5.0</td>
<td>6.2</td>
<td>0.277</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>159.6</td>
<td>0.093</td>
<td>4.7</td>
<td>163.1</td>
<td>0.268</td>
</tr>
<tr>
<td>Countries with data available</td>
<td>62</td>
<td>63</td>
<td>55</td>
<td>61</td>
<td>57</td>
</tr>
</tbody>
</table>

DAH, development assistance to health; GDP, gross domestic product.

a Dutch disease is an economic phenomenon that can occur when the inflow of large amounts of foreign exchange leads to an increase in inflation and loss of international competitiveness, with an adverse impact on exports and economic growth.

b Deviation of annual aid from its long-term trend using the Hodrick–Prescott filter.
further 10 countries that have not had a rapid scale-up of health spending, but which do have high macroeconomic risks. It is possible that macroeconomic risks are constraining the expansion of health aid and spending in these cases, and certainly increased aid is likely to be associated with a risk of Dutch disease.

The largest group of some 30 countries comprises those where there is no evidence of increased health spending and with medium or low macroeconomic risks. In these cases a planned or proposed increase in health aid should not pose immediate significant macroeconomic risks.

Discussion

The Dutch disease hypothesis states that large inflows of foreign exchange, including that from aid, could increase inflationary pressures, particularly for goods and services that are not traded internationally, cause RER appreciation and reduce economic growth, particularly for exported goods. The impact, if any, depends on an array of country-specific factors.

We have also shown that there are effective means for mitigating the risk of Dutch disease, allowing the increase of DAH required to improve population health, e.g. reaching the Millenium Development Goals, and to meet universal coverage goals for essential health services. Factors that are under the control of the health authorities include how rapidly the aid is spent, the import content of aid-financed spending and whether the spending exacerbates or mitigates local-capacity bottlenecks. If aid relieves bottlenecks, e.g. by training new health staff, its adverse macroeconomic effects are likely to be mitigated or even be totally eliminated.

Several other factors that are largely beyond the control of the health authorities may determine how the aid impacts on the broader economy. If inflation is already high, expansion of public spending may be constrained regardless of how the ministry of health uses it. The constraints to expanding health spending are also likely to be more binding if there is a history of aid volatility, and if the authorities do not possess good monetary instruments to control inflation.

Macroeconomic risks are assessed to be high in 7 of 15 countries where health spending is scaling up, posing possible constraints for the continued expansion of DAH. Macroeconomic risks are also elevated in 10 countries not presently increasing health spending, which might restrict their capacity to absorb and spend any new DAH. In fact, these problems might already be constraining either health spending or aid inflows.

Lastly, it is important for ministries of health to ensure the efficient use of the new resources that are channelled through government – this effectively increases the fiscal space available to the health sector. International partners also have an important role to play. Donor funding has been very unpredictable, to the extent that ministries of finance have been reluctant to allow these funds to be used to build physical infrastructure or invest in human capital on the grounds that they cannot be certain the funds for upkeep will be available in the future. Sustained and predictable flows of aid will allow more productivity-enhancing investment in physical and human capital, contributing to a reduction in the harmful macroeconomic effects of the aid increase.

Competing interests: None declared.
Résumé
Aide au développement en faveur de la santé : les décideurs politiques doivent-ils se soucier de son impact macroéconomique ?

De nombreux pays à faible revenu doivent substantiellement accroître leurs dépenses pour réaliser les objectifs portant sur la couverture universelle par les services sanitaires essentiels. Néanmoins, la grande faiblesse de leurs ressources font qu’ils sont dans l’incapacité, à court ou moyen terme, de lever des fonds suffisants à partir de leurs seules sources domestiques. Il faudra donc leur apporter une aide accrue en faveur de la santé. Cependant, on craint depuis longtemps que l’arrivée rapide de grandes quantités de devises étrangères dans le pays n’entraine une hausse de l’inflation et une perte de compétitivité internationale, avec des effets néfastes sur les exportations et la croissance économique, un phénomène économique appelé «syndrome hollandais». Nous avons analysé des études empiriques menées à travers ou à l’échelle d’un pays et nous proposons un cadre simple pour juger l’ampleur des risques macroéconomiques. Parmi les 15 pays à faible revenu dont les dépenses de santé subventionnées sont en augmentation, 7 présentent des risques macroéconomiques importants, qui pourraient faire obstacle à un accroissement durable des dépenses. Ces considérations s’appliquent également à un quart des 42 pays dont les dépenses n’augmentent pas actuellement. Les autorités sanitaires doivent être conscientes des nombreux facteurs de risque en jeu, y compris des facteurs spécifiques au secteur sanitaire et d’autres qui ne le sont généralement pas. Elles doivent aussi réaliser qu’il existe des moyens efficaces pour atténuer le risque de syndrome hollandais associé à une augmentation de l’aide au développement en faveur de la santé. Les partenaires internationaux ont également un rôle important à jouer car l’apport par les donateurs de flux de financement plus durables et plus prédictibles favorise des investissements plus productifs en capital humain et physique, ce qui contribue également à minimiser les effets macroéconomiques néfastes d’une aide accrue.

Resumen
Asistencia para el desarrollo destinada a la salud: ¿ deben preocuparse las instancias normativas por su impacto macroeconómico?

Muchos países de ingresos bajos necesitan aumentar sustancialmente su gasto si desean alcanzar las metas de cobertura universal para servicios de salud esenciales, pero, al ser su renta muy baja, la mayoría no podrán recaudar fondos suficientes de fuentes nacionales a corto y medio plazo. Se requerirá un incremento de la ayuda para la salud. Sin embargo, un riesgo que suscita preocupación desde hace tiempo es que el rápido aflujo de grandes cantidades de divisas a un país puede provocar un aumento de la inflación y pérdida de competitividad en el plano internacional, con el consiguiente perjuicio para las exportaciones y el crecimiento económico. Lo que se conoce como “mal holandés”. Tras examinar diversos estudios empíricos interpaíses e intrapaíses, proponemos un marco simple para calibrar la magnitud de los riesgos macroeconómicos. De los 15 países de ingresos bajos que están aumentando el gasto en salud financiado con ayuda, 7 presentan riesgos macroeconómicos elevados que pueden dificultar una ampliación sostenida del gasto. Esta situación se da también en una cuarta parte de los 42 países que no están aumentando el gasto actualmente. Las autoridades sanitarias deben ser conscientes de los muchos factores de riesgo que intervienen aquí, dentro y fuera del sector de la salud. Deben reparar también en que existen medios eficaces para mitigar el riesgo de mal holandés asociado al aumento de la asistencia para el desarrollo destinada a la salud. Los asociados internacionales tienen además un papel importante a desempeñar dado que unos flujos más sostenibles y predecibles de financiación por los donantes permitirán hacer una mayor inversión en capital físico y humano y mejorar la productividad, lo que contribuirá también a reducir los efectos negativos de los aumentos de la ayuda en las variables macroeconómicas.
Special theme – Health financing

Macroeconomic impact of aid for health

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